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ABSTRACT

Computer courseware appropriate for instruction in grades K-12 is listed in two advisory lists. Entries, selected from materials submitted by producers which received favorable reviews by educators, are arranged in the following categories: arts education, communication skills, mathematics, science, utility (a quiz generator), word processing, and management-media (automation of routine library operations). Entries include citation, format, price, producer, grade level, equipment required, and annotation; some entries also give computer language. For many entries, strengths, weaknesses, and uses are discussed. A directory of producers is included. (THC)

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ADVISORY LIST OF COMPUTER COURSEWARE

North Carolina State Department of Public Instruction
Educational Media and Technology
Division of Media Evaluation Services
1983

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Division of Media Evaluation Services
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State Department of Public Instruction

Raleigh, North Carolina
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ADVISORY LIST OF COMPUTER COURSEWARE

ARTS EDUCATION

CHORD MANIA. 1 diskette, guide $190. Micro Music, 1981. Grades 7-12

Language: Extended BASIC. Equipment required: 48K Apple II Plus or 48K Apple II with Applesoft, DAC board ($175 from Micro Music), disk drive, speaker or earphones (special adapter for earphones available from Micro Music)

Challenging game for one or two players (or possibly teams) develops quick identification of four-voice chords; three levels of difficulty permit user to select chord quality and/or inversion and to progress from triads to sevenths; players select either aural or visual mode and have only two tries for correct identification; special feature permits teacher to preset program and control parameters of student drill; game players must have a knowledge of music notation and an understanding of chord construction; effective reinforcement for students working with four-part harmony

DICTATOR SERIES. Each title contains 1 diskette, student score sheet, guide each $190. Micro Music

Language: Extended BASIC. Equipment required: 48K Apple II Plus or Apple II with Applesoft, DAC board ($175 from Micro Music), disk drive, speaker or earphones (special adapter for earphones available from Micro Music)

Well-conceived and executed tutorial programs; packaged with detailed descriptive guide in plastic envelope designed to fit three-ring binder; Micro Music offers 90 day warranty and subsequent replacement arrangement for damaged disks

HARMONIOUS DICTATOR. Micro Music, 1981. Grades 7-12
Aurally and visually presents chords for which user supplies root movement and defines inversions; randomly generated examples offered at nine levels of complexity beginning with tonic-dominant, ending with diatonic chords and secondary dominants with inversions; user selects difficulty level, decides whether to have program maintain difficulty level or automatically adjust according to accuracy of response; user may repeat chord as often as necessary, though number of repeats affects final score; detailed on-screen instructions for new user; users must be familiar with Roman numeral denotation of chord function, numeric indicators of chord inversions, and have knowledge of chord construction; excellent drill for individual or student use

RHYTHMIC DICTATOR. Micro Music, 1980. Grades 5-12
Designed to help user develop skills in rhythmic pattern recognition; user selects beginning exercise and program adjusts level according to accuracy of responses; 65 exercises present randomly generated patterns through 10 levels of difficulty; users must know rhythmic symbols such as quarter notes or eighth rests and relationships between values; each tested phrase contains only a single value of notes and rests; student can call for repeat of rhythm as often as necessary, though each repeat decreases final score; suitable for use as reinforcement by individuals or groups in general music, band, orchestra, chorus, music theory classes

MODE DRILLS. 1 diskette, guide $110. Micro Music, 1981. Grades 4-12

Language: Extended BASIC. Equipment required: 48K Apple II Plus or 48K Apple II with Applesoft, DAC board ($175 from Micro Music), disk drive, speaker or earphones (special adapter for earphones available from Micro Music)

Excellent computer-assisted drills for developing aural and visual familiarity with major and minor scales as well as those scales closely identified with church music; essential instructions on screen and in guide permit user to control speed of presentation, number of times scale is repeated; banks of pre-programmed scales randomly generate exercises assuring variety in presentations; incorrect answer produces both aural and visual representation of the incorrect response followed by the correct response; running score

MODE DRILLS. (Cont'd.)

on screen tracks student's progress; for maximum value user must have knowledge of seven-toned scale notation, familiarity with Greek modes common to church music; easy-to-use drill for novice or experienced musician

PITCH IDENTIFICATION DRILLS WITHOUT ACCIDENTALS. 1 diskette, guide $110. Micro Music, 1981. Grades 4-12

Language: Extended BASIC. Equipment required: 48K Apple II Plus or 48K Apple II with Applesoft, DAC board ($175 from Micro Music), disk drive, speaker or earphones (special adapter for earphones available from Micro Music)

Simple approach to aurally and visually identifying single pitches notated on treble, bass, grand staffs; user receives one opportunity to respond; if original answer is wrong, correct identification is displayed and sounded along with the incorrect answer; disk also includes a timed game plus practices for identifying concert pitch of note shown for B-flat, E-flat, F, and A instruments; timed pitch identification game becomes unreasonably fast (.7 of a second for a response) after series of correct answers; educationally sound lessons will be useful wherever there is need to develop pitch recognition skills

RHYTHM DRILLS. 1 diskette, guide $190. Micro Music, 1981. Grades 6-12

Language: Extended BASIC. Equipment required: 48K Apple II Plus or 48K Apple II with Applesoft, DAC board ($175 from Micro Music), disk drive, speaker or earphones (special adapter for earphones available from Micro Music)

Seven progressively complex programs provide variety of eight-note rhythmic patterns using whole, half, quarter, eighth, sixteenth notes; melodies presented initially only aurally; after user responds, correct scale is presented both aurally and visually; program permits user to control speed of presentation, number of repeat playings, and note values tested; cummulative score displayed on screen; random generation permits regular practice in rhythmic identification for band and orchestra members or general music students

COMMUNICATION SKILLS

BASIC WRITING COMPETENCY PROGRAM. 2 diskettes, guide $65. Ed. Activities, 1982. Grades 7-12

Language: Applesoft BASIC. Equipment required: 48K Apple II Plus or 48K Apple II with Applesoft, disk drive

Supplementary practice and review for teacher's more thoroughly developed lessons that have already introduced basic elements of writing business letters and reports; program leads students through drills which require only single stroke answers, giving students no opportunity to actually compose letters or reports; companion program, WRITING COMPETENCY PRACTICE duplicating masters, Ed. Activities, 1980 (to be cited on next Communication Skills ALIM), does provide numerous writing opportunities; business letter segments emphasize capitalization and punctuation of heading, inside address, body, and salutation, with additional review of how to accurately state a consumer complaint or request; report-writing segments reinforce necessity of using proper organization and adequate supporting statements; program uses simple on-screen directions; slow graphics, frequent need to recall previous screen, and lack of variety may cause some students to lose interest; guide explains management component which permits teacher to note students' final scores on each lesson; guide states that student cannot repeat same lesson without teacher's expressed permission, however preview disks did permit such repetition without teacher's override; useful lessons for review or remediation if accompanied by pen and paper writing assignments

BEGINNING GRAMMAR 1 module, guide $29.95. TI, 1979. (Available from Scholastic.)
Grades 2-5

Language: BASIC. Equipment required: 16K TI 99/4 or TI 99/4A

Supplementary drills help students learn to differentiate parts of speech; bright animation, lively (but lengthy) musical passages will appeal to youngest users and amuse elementary students; simple programs call for minimal keyboard skills, but may require explanation by teacher; student receives total score after every ten examples with option to continue or quit; in every segment, randomized vocabulary selections are drawn from limited vocabulary base providing minimal variation for repeat users

GOING PLACES WITH NOUNS asks students to identify type of word appearing on screen as person, place, thing, or "not a noun"; use of all capital letters may pose some difficulty with proper nouns; new word will appear only after existing word is correctly identified

VERB LIFT employs present or past tense verbs and gives students two chances to correctly identify verb in each sentence

PRONOUN POSTERS gives students two opportunities to identify and type in specific pronoun shown in lengthy billboard message

ADJECTIVE'S RESTAURANT presents descriptive menu items from which students select and type in adjectives such as *crisp, sweet, hot, large, juicy*

ADVERB ATTRACTION gives players two chances to identify and type in adverb in fanciful movie title; frequently used adverbs include *quietly, clearly, never, truly*

PREPOSITION/CONJUNCTION introduces both parts of speech simultaneously for students to identify one or the other in each presented sentence

GRAMMAR PROBLEMS FOR PRACTICE. 2 units each containing 2 diskettes, guide each unit $80.
Milliken, 1982. Grades 5-12
Titles: HOMONYMS; VERBS

Language: Applesoft BASIC. Equipment required: 48K Apple II Plus or 48K Apple II with Applesoft, disk drive, printer (optional)

SEE PUBLISHER'S LITERATURE FOR OTHER COMPONENTS IN SERIES

Drill and practice programs cover irregular verbs, homonyms, and confusing word pairs; student takes pretest on one specific objective and is then either advanced to next lesson or sent into original lesson beginning with "Introduction and Directions" where he receives brief explanation of drill format and an example of problems to be presented; succeeding segments include "Definitions and Examples" which explains each word or form used in lesson, and "Practice Sentences" which provides interactive drill and practice; after correctly answering six of seven questions, user takes posttest; successful completion of this advances student to next assignment; word combinations in HOMONYMS range from *dear/deer, sea/see, to principal/principle, stationary/stationery*; program also includes contraction homonyms such as *whose/who's*, triple homonyms such as *rain/reign/rein*, and confusing pairs such as *affect/effect*; VERBS covers a comprehensive list of verb forms including regular and irregular verbs, troublesome pairs such as *teach/learn, lie/lay, sit/set*, and subject-verb agreement lessons using inverted order, compound subjects, and indefinite pronouns or collective nouns as subjects; each unit includes overall guide to the series, and a specific guide for each program; management segment of program lists records for 100 students per diskette, permits teacher to individualize assignments, and generates variations of tests; data from the management segments can be printed for permanent records; exercises suitable for use as follow-up drill only after teacher presentation of specific grammar concepts

GREEK AND ROMAN MYTHOLOGY: POSEIDON AND ATHENA. 1 diskette, 5 student readers, catalog cards, guide $69 Pomfret Hse., 1983. (Available from Ency. Brit. Ed.) Grades 9-10

FAMOUS MYSTERIES: HOUND OF THE BASKERVILLES. 1 diskette, 5 student readers, catalog cards, guide $69. Pomfret Hse., 1983. (Available from Ency. Brit. Ed.) Grades 4-8

Language: Applesoft BASIC. Equipment required: 48K Apple II Plus or 48K Apple II with Applesoft

Drill and practice activities to be completed after student has read illustrated booklet (or viewed sound filmstrip also available from Pomfret Hse.) containing abbreviated version of classic; practices on three levels of difficulty cover vocabulary, sequence, synonyms, and word meaning; after reading story booklet or viewing optional filmstrip, student takes computer placement pretest and is assigned to one of three levels of exercises; teacher can override computer's assignment; exercises provide immediate feedback whenever student responds incorrectly; motivational game included at the end of exercises lets student make up as many words as possible in two minutes from letters of one of the vocabulary words; management option gives teacher access to student records which can be displayed or printed; documentation provides suggestions for using program in class, descriptions of each program component, information on using recordkeeping system, and suggestions for additional activities; one guide serves entire series, includes no specific information on story being studied; program could be used as supplementary enrichment activity for students operating on grade level after teacher has provided thorough introduction of vocabulary; can also be used for remedial reading instruction in higher grades; concepts used in the story are neither too advanced for use with younger students nor too juvenile for high schoolers; teacher could generate study guide from the booklet as easily as use this program, but unique benefits are in diagnostic potential, self-grading, and report writing; two noted weaknesses are that program lacks questions dealing directly with identifying main idea, and occasional inattention to proper grammatical usage, e.g., "hopefully" used colloquially, but incorrectly; see publisher's literature for additional titles in *Famous Mysteries* or *Greek and Roman Mythology*

HOMONYMS 1 diskette, guide $39.95. Hartley Courseware, 1982. Grades 3-8

Language: Applesoft BASIC. Equipment required: 48K Apple II or Apple II Plus, disk drive, printer (optional)

Twenty lessons teach students to differentiate among sets of two or three homonyms; lessons range from three to eleven combinations and increase in difficulty from *one/won*, to *suite/sweet* with review quizzes given every five lessons; outstanding feature of program is the teacher's menu permitting changes and additions to existing lessons, and the creation of new lessons within the existing format; easily mastered procedures for using teacher's options are explained in accompanying guide and on the screen--after teacher's menu has been accessed; options at end of change-file permit teacher to set mastery level, randomize questions of new or old lessons; student planning file holds 50 records of student performance; uses large, clear upper and lower case alphabet; though somewhat repetitive for routine use, program can serve as valuable tool for teachers who want to develop their own drill and practice lessons to accompany classroom unit

MIX AND MATCH. 2 diskettes (1 master, 1 back-up), guide $50. CTW, 1981. (Available from Apple.) Grades K-4

Language: Applesoft BASIC. Equipment required: 48K Apple II Plus or 48K Apple II with Applesoft, disk drive

Four programs developed by Children's Television Workshop feature activities designed to strengthen children's reasoning and language skills; guide has directions which are easy for the young reader to follow (teacher or older student will have to help

MIX AND MATCH (Cont'd.)

non-readers) and offers many practical, enjoyable activities to reinforce skills taught in the program; enrichment programs keep no scores or records

MIX AND MATCH divides Sesame Street characters into three parts and lets students redesign and rename their own imaginative creations, e.g., matching Bert's head, the Cookie Monster's body, Big Bird's feet produces Berkie Bird

ANIMAL requires some degree of reading and composition skill as students must complete sentences in order to describe their animals for the computer to identify

LAYER CAKE involves the familiar logic game of moving four cake layers in appropriate size order from one plate to another in the smallest number of moves; provides an excellent exercise in logic

RAISE THE FLAG calls on students to guess a word letter-by-letter with the help of an amusing, little Big Bird; lengthy pre-programmed wordlists contain food words such as *egg, squash, pizza, milk,* and nature words such as *beach, cliff, acorn, dirt;* students or teachers may also create their own wordlists by using the Word Editor segment and a blank disk

READING FUN. 1 module, reader, guide $58.95. Scott F, 1982. (Available from Stone's.) Grades 1-5

Language: BASIC. Equipment required: TI 99/4 or TI 99/4A, speech synthesizer

Lessons help students to understand three important reading skills: identifying problems and solutions, identifying cause and effect, identifying characters' feelings; students first study specific skill by analyzing story; help is available in the form of a glossary and opportunity to recall segments of story; after this initial instruction students then move on to randomly generated story situations providing several opportunities for practice of the specific skill; finally, students work with all three skills within a single story; clearly spoken instructions and musical reinforcement support user-paced stories; user receives immediate feedback and assistance in reaching the correct answer; accompanying 32-page reader provides additional practice as do the 11 reproducible worksheets in teacher's guide; suitable for introducing or reinforcing reading skills for primary and elementary students

WORDSKILL FOR THE MICROCOMPUTER. 6 grade-level programs each containing 2 diskettes, WordSkill workbook, 50 student record sheets, 50 worklists, guide $810. each grade-level program $160. SRA, 1982. Grades 7-12

Language: Applesoft BASIC. Equipment required: 48K Apple II Plus or 48K Apple II with Applesoft, disk drive

Vocabulary reinforcement program comprised of four microcomputer games developed to accompany SRA's existing WordSkill workbooks*; six pairs of disks support the six workbooks; words used in games correspond to but do not exactly match the workbook wordlists; each game offers option of individual or paired play; running scores displayed throughout game, but not maintained for teacher's records; players analyze synonyms, definitions, antonyms, and analogies in order to recognize, recall, and spell target words; excellent guide correlates workbook and microcomputer activities, provides explicit directions and practical suggestions for using games; appropriate for use with any student reading at the seventh grade level, even those for whom English is a second language

NAME THAT WORD gives students one chance and 40 seconds to select one of five words as the apporpriate target word for the analogy displayed

REVEALIT is concentration game requiring players to match hidden synonyms and target words

WORDSKILL FOR THE MICROCOMPUTER. (Cont'd)

KNOWIT players have two chances to recall and correctly spell target word after definition is displayed

WORDMAZE allows players to move through maze by correctly recalling antonyms to word displayed

*WordSkill workbook contains short answer questions, research activities, writing and speaking assignments, glossary, and concrete suggestions for strengthening one's vocabulary (see publisher's literature for purchasing information)

MATHEMATICS

BASIC MATH SYSTEM "S". 8 diskettes, guide $350. Math City, 1980. (Available from Hart.) Grades 2-8

Language: Applesoft BASIC. Equipment required: 48K Apple II Plus or 48K Apple II with Applesoft, disk drive, printer (optional)

Broad spectrum program can serve as basic math instruction from single digit operations up through percentages, geometry, metrics, and set theory; applications include word problems, graph reading, horizontal and vertical numeric arrangements, and several problems requiring estimation; after student takes pretest (requiring pencil and paper in order to do the actual figuring), the score is recorded and teaching assignments are based on test results; tests may take up to one hour for the most methodical students; management component permits teacher to individualize assignments using teacher-developed programs or preset computer stored lessons; students can periodically take mini tests in order to upgrade their assignments; throughout program students have ample-opportunity to ask for and receive thoroughly explained assistance; flexibility of assignments, detailed record-keeping (for up to 50 students on original disk) make this system useful for enrichment, remediation, or regular instruction and practice; student records can be preserved on hard copy; teacher should allow time to learn and become familiar with program options and hundreds of specific concepts taught and tested; those teachers planning to individualize assignments will want additional time to develop their own assignment libraries; three-ring binder holds excellent set of directions, lists of lesson and text contents, and plastic envelopes for disks

GUINNESS WORLD RECORDS PROBLEM AREAS IN MATH. 4 diskettes, 32 reproducible worksheets, guide $225 SVE, 1982. Grades 3-7

Language: Applesoft BASIC. Equipment required: 48K Apple II Plus or 48K Apple II with Applesoft, color monitor, disk drive

Highly motivating drill and practice lessons for improving students' whole number addition and subtraction skills; programs complement GUINNESS WORLD RECORDS MATH MODULE (reviewed in Instructional Materials for Middle Grades, 1980); for each computational skill students begin with mastery diskette, solving randomly generated problems and being rewarded with a short game; emphasis at mastery level is on correctly performing appropriate sequence of steps in each problem; two errors result in program meticulously leading student through each computational step; application diskettes contain intricate games requiring students to read traditional Guinness stories and to solve arithmetic problems in order to reach ultimate goals; application games require logical thinking, arithmetic skill, and good hand-eye coordination--the kind of coordination commonly required in arcade video games; management segments of program permit teacher to structure assignments for each individual student, for an entire class, or to let student determine his own assignment; options available include the number of problems to be solved, whether large or small numbers should be used, and whether word problems or number problems should be presented; the teacher can also control degree of difficulty of

GUINNESS WORLD RECORDS PROBLEM AREAS IN MATH. (Cont'd.)

problems offered; number problems are randomly generated, word problems are repeated; management segments record students' progress on both mastery and application lessons; three-ring binder holds pages with complete directions for successful classroom use, plastic pockets for storing diskettes, and reproducible worksheets designed to give students valuable practice in utilizing addition and subtraction skills by solving puzzles, reading about obscure world records, and performing basic arithmetic activities such as rounding and estimating; delightfully clever graphics may lose some of their appeal and eventually become irritatingly time consuming; attractive, colorful lessons can be equally satisfactory if used with black-and-white monitor; excellent program should result in students clamoring to practice their addition and subtraction

DIRECTORY OF PRODUCERS

Apple - Apple Computer, Inc., 10260 Bandley Drive, Cupertino, California 95014

Ed Activities - Educational Activities, Inc., P.O. Box 392, Freeport, New York 11520

Ency. Brit. Ed. - Encyclopaedia Britannica Educational Corporation, 425 North Michigan Avenue, Chicago, Illinois 60611

Hart - Hart, Inc., 8 Baird Mountain Road, Asheville, North Carolina 28804

Hartley Courseware - Hartley Courseware, Inc., P.O. Box 431, Dimondale, Michigan 48821

Micro Music - see Musitronic

Milliken - Milliken Publishing Company, 1100 Research Boulevard, St. Louis, Missouri 63132

Musitronic - Musitronic, P.O. Box 441, 555 Park Drive, Owatonna, Minnesota 55060

Scholastic - Scholastic, Inc., 904 Sylvan Avenue, Englewood Cliffs, New Jersey 07632

SRA - Science Research Associates, Inc., 155 North Wacker Drive, Chicago, Illinois 60606

Stone's - Stone's Southern School Supply Company, 3800 Holly Springs Road, Raleigh, North Carolina 27606

SVE - Society for Visual Education, Inc., 1345 Diversey Parkway, Chicago, Illinois 60614

Division of Media Evaluation Services
Educational Media and Technology
State Department of Public Instruction

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ADVISORY LIST OF COMPUTER COURSEWARE

COMMUNICATION SKILLS

ARCADEMIC SKILL BUILDERS IN LANGUAGE ARTS. 6 games each containing 1 diskette, 24 reproducible worksheets, guide each game $44. complete set $245. DLM, 1983. (Available from Stone's. Also available from Hartman.) Grades 2-5

Equipment required: 48K Apple IIe, Apple II Plus, or Apple II with Applesoft, disk drive, game paddles (optional).

This series of drill and practice games provides users with a chance to use spelling, reading, and grammar skills already introduced in the classroom. Programs are based on arcade-style games with colorful graphics, fast action, and sound effects. A menu of optional game controls allows the teacher to determine the speed of presentation, the difficulty level of vocabulary, the length of time the game is to be played (from one to five minutes), whether the player will use game paddles or keyboard, and the level of difficulty of the contents. Throughout a game, scores are recorded so that players can compete against their own best score or against each other.

Spelling Wiz uses twenty-one different word lists composed of difficult or frequently misspelled words. The lists begin with colors, numbers, months, and easier words such as *said, here, name* and move up to more challenging lists with *parallel, miniature, conscience,* and *mischievous.* Players move a wizard's wand to point to the letter or pair of letters which will correctly complete the featured word.

Verb Viper displays a dragon-like snake crouching in front of the mouth of a cave below which is displayed the subject of a sentence or phrase. As a verb pops out of the cave and moves across the screen toward the viper, the student matches subject and verb according to tense and number. Documentation states that the words from the four list options are on the first, second, and third grade levels with level four a mix of the first three levels.

Word Invasion calls on the player to identify parts of speech as he helps the Alien Octopus zap verbs, nouns, adjectives, adverbs, pronouns, and prepositions. Game control allows game to be set to drill students in any two or more parts of speech mentioned above at four levels of difficulty.

Word Master calls on the player to match a word to its corresponding antonym, synonym, homonym, or a random selection of all three. Antonym pairs include *boy/girl, plain/fancy, ancient/modern;* synonyms include *cap/hat, route/course, sight/vision;* and homonyms include *inn/in, waist/waste, sighs/size.*

Word Radar is supposed to provide practice in quick recognition of a sight vocabulary. The students play a simplified version of Concentration using reading lists suitable for the primary grades with words such as *is, box, work, would, please,* and *flowers.*

Wordman generates a maze on the screen throughout which are the final two and three letters of three- and four-letter words. The object of the game is for the player to match the constantly changing and moving first letters to the appropriate word part in the maze. The program is supposed to drill recognition of consonant-vowel-consonant and consonant-vowel-consonant-silent e words. However, the game is set up so that the player will respond to words he recognizes rather than actually analyze the consonant and vowel mix.

STRENGTHS: The six programs in this series are highly motivational due to the game format, excellent graphics, and fast-paced action. The common characteristics of the programs simplify both the management and operation of each game. The scope of the series makes it versatile enough to be used at several grade

ARCADEMIC SKILL BUILDERS IN LANGUAGE ARTS. (Cont'd.)

levels and for remedial drill. Within the context of drill and practice programs, this series with some exceptions carries out its stated goals.

WEAKNESSES: As with any series of instructional materials, some of the sections are better than others at presenting instruction and achieving their objectives. In some programs the game takes precedence over the instructional aim, particularly in *Wordman* and *Word Radar*. Teachers may have some questions about the emphasis on sight reading in some of the programs.

USES: These limited drill and practice programs are useful with students who have previously been introduced to the skills covered. They are not designed to keep records, provide tutorial instruction, or branch to meet the user's needs. The programs could be used in grades two through five and for remediation throughout these grades and above.

BANK STREET WRITER. 3 diskettes (2 are backups), guide $95. Scholastic, 1982. Grades 3-12

Equipment required: 48K Apple IIe, Apple II Plus, or Apple II with Applesoft, disk drive, blank diskette.

This easy to use word processing program is intended for use by any student required to produce written material. The program is divided into three separate modes: the "enter text" mode which allows the user to enter text directly through the keyboard, the "edit text" mode which allows the user to manipulate previously entered text, and the "transfer mode" which allows the user to move the text from the computer's short term memory to diskette storage or to paper. A fifteen-minute tutorial on the reverse side of the program diskette provides step-by-step instruction for the independent user. Scholastic's looseleaf guide gives the classroom teacher specific directions for using the computer, word processing programs, and *Bank Street Writer* in particular. It has in print format all of the instructions which appear in the tutorial and on the screen, but it also includes additional suggestions for formatting, saving, and printing documents. The guide also explains the utility program which lets the user adjust the program to fit the characteristics of the available printer or to convert the program for use over phone lines. The final segment of the guide includes several activities encouraging students to take full advantage of the program. These activities require the teacher to create files with directions which the students must follow.

STRENGTHS: One of the strongest aspects of the program is its ease of use; this simplicity is due to the clear instructions which appear on the screen whenever the user selects one of the options or functions. Three of these functions are *erase* which lets the user erase a letter, a space, or up to fourteen lines of text; *replace* which lets one make substitutions either a single time or whenever the targeted words appear (great for correcting consistent spelling errors); and *move* which permits the writer to rearrange words or blocks of print.

WEAKNESSES: Because the screen is partially used for directions, only eighteen lines of print appear on the screen at a time. If a student does not have good recall of his work, he will have to spend a fair amount of time scrolling his text in order to reread it. The user wanting to create a very long document, such as a term paper, will probably have the text on more than one diskette. There is no provision for italics, print size changes, sub- or superscript for footnoting or underlining, or other special commands. Compared to more sophisticated word processing programs, this has relatively slow response times.

USES: The program is an excellent tool for teaching word processing concepts. It is most useful as an aid in the English/Language Arts classroom for teaching

BANK STREET WRITER. (Cont'd.)

composition by making less painful the tedious tasks of insertion and deletion, correcting errors, and revision. All subject area teachers will welcome the use of this type of tool for written work. The program is an outstanding example of a simple-to-use word processor. Every school with an Apple computer should have at least one of these programs.

Bank Street Writer is also available in the Broderbund version described on page nine.

CROSSWORD MAGIC. 1 diskette, guide $49.95. L & S Computerware, 1981. (Available from Hart, Inc.) Grades 3-12

Equipment required: 48K Apple IIe, Apple II Plus, or Apple II with Applesoft, disk drive, printer (see publisher's literature for printer options).

This easy-to-use computer program allows one to create and print out a professional looking crossward puzzle without the tedious work usually associated with the task. The puzzle grid automatically adjusts from a square of 3x3 up to one of 20x20 and interconnects each word as it is added. If a word cannot be interconnected as it is entered, it will be stored on a list to which the user later can refer. Once the puzzle is arranged, the user then adds clues of up to 98 characters. Puzzles can be stored on the program diskette, a separate storage diskette, or on paper. A menu option allows the user to choose a specific printer or to customize the printer settings. The printed puzzle is of excellent quality and easily duplicated. Clues are printed beneath the puzzle and a miniature completed puzzle is printed separately. The student can work the printed puzzle or work directly on the computer.

STRENGTHS: Program may be used with all the students in a class or with a select group. Either students or teachers can create the puzzles which need not be restricted to any subject area or grade level. The created puzzle can be easily removed from the program disk, permitting infinite use. A created puzzle can be saved on a disk or on paper, permitting frequent re-use of a well-designed puzzle. The clearly printed puzzle is easy to copy on a duplicating machine.

WEAKNESSES: The main weakness of this program is that it is not possible to edit the words on the puzzle after they are in place. The only way to correct a puzzle word is to catch the error before moving to the next word, or to restart the whole puzzle. Another inconvenience is that all the puzzle words must be entered before any clues are entered. While clues up to three lines long may be used, the words will wrap around on the screen or on the paper without regard to proper hyphenation.

USES: This is an excellent instructional or reinforcement tool for any level classroom and will be used frequently wherever this kind of activity is popular.

HOUGHTON MIFFLIN MICROCOURSE: LANGUAGE ARTS. 136 diskettes, record booklets, 3-ring binder (with order of 4 or more diskettes), guide each diskette $39.75. TSC/Houghton, 1983. Grades 3-8

HOUGHTON MIFFLIN MICROCOURSE: READING. 114 diskettes, resource book, record booklets, 3-ring binder (with order of 4 or more diskettes), guide each diskette $39.75. TSC/Houghton, 1983. Grades 3-8

See publisher's literature for individual titles of diskettes and for special pricing arrangements available.

Equipment required: 48K Apple IIe, Apple II Plus, or Apple II with Applesoft, disk drive, high-resolution video monitor, Videx Videoterm 80-Column Card (available from TSC at a cost of $195).

Publishers state that this program is also available for the IBM Personal Computer.

HOUGHTON MIFFLIN MICROCOURSE. (Cont'd.)

Vast drill and practice program covers more than 770 distinct lessons important to the development of reading, writing, and speaking skills. Lessons move in discrete steps from the third through the eighth grade level by reinforcing and building upon material which is being presented. In the language arts lessons students move from basic sentence construction through proper use of internal and end punctuation. More than 75% of this material emphasizes proper verb usage. Reading lessons cover structure and relationships of words, decoding skills, as well as interpretation and use of different writing styles. Some reading lessons provide training in selecting, finding, and using reference sources from pictures to maps to encyclopedias. Accompanying resource book contains maps, charts, outlines, and other illustrative material necessary for the completion of some reading activities.

STRENGTHS: The program includes pre- and posttests for quick diagnoses, though some practice units do cover ground which is not tested. Lessons provide students with immediate evaluation of their work and positive reinforcement for correct responses. Broad scope of total program makes it useful for a wide range of students, while also providing distinct learning segments. Some titles included are "Base Words and Affixes," "Alphabetical Order," "Vowel Sounds," "Recognizing Topics and Details," "Identifying Nouns," "Punctuation-Commas," "Gerunds and Gerund Phrases," "Choosing and Using Reference Sources," "Evaluation of Persuasive Writing," "Distinguishing Between Fact and Fantasy," "Figures of Speech and Idiomatic Expressions."

WEAKNESSES: Guide describes overall operation of program, but does not offer details about individual lessons; nor does it explain the purpose and use of the required special hardware, e.g., the Videx card. Fine print resulting from the use of this 80-column card may result in some eye fatigue if used without respite over an extended period of time, though young students would be unlikely to use the program for longer than 15-minute segments. Keystroke errors are scored as mistakes, whether they are spelling errors or and inadvertent tap of the return key (even though there are some grammar and spelling errors within the text of the program). Inconsistency of required responses--letters, numbers, words--may cause some beginning students to hit the wrong key unintentionally. When a student does have difficulty, the program does not explain why an answer is correct or incorrect. Program design permits students to go through the entire lesson hitting the "return" key and ultimately being shown the correct answer on the screen, possibly encouraging lack of attention. Students must transfer their own scores from the screen to a printed score sheet from which the teacher (or an aide) must record the scores on a master tally sheet--both a time-consuming and error-generating procedure. There is no management component from which teachers can retrieve actual performance records at their own convenience.

USES: Lessons are designed to supplement the teacher's instruction and to provide students with structured drill where they demonstrate identifiable needs. Individual programs can be purchased to suit a school's specific curricular goals and are especially well suited to a laboratory setting in regular or remedial classes.

PUNCTUATION I: THE PERIOD, QUESTION MARK, AND EXCLAMATION POINT. 1 diskette, 2 reproducible activity sheets, guide $49. Ed. Activities, 1982. Grades 3-5

PUNCTUATION II: THE COMMA. 1 diskette, 3 reproducible activity sheets, guide $49. Ed. Activities, 1982. Grades 3-5

Equipment required: 48K Apple IIe, Apple II Plus, or Apple II with Applesoft, disk drive.

In this drill emphasizing the proper use of these punctuation marks, the student edits correspondence from the computer by inserting the correct marks. In *Punctuation I* the student helps tell the tale of a hectic first day at work by using appropriately explicit end punctuation. In *Punctuation II* he uses commas with addresses, dates, letter greetings and closings, direct quotations, compound sentences, and words in a series. Presented with good use of graphics and large print, the program begins with a tutorial section followed by application exercises.

STRENGTHS: The amusing content of the letters will hold the students' attention as they practice these skills. Graphic reinforcement is amusing and attractive, though occasionally it is irritatingly time consuming. Immediate feedback for incorrect answers in the application sections repeats the information given in the tutorial segments. The program is designed to minimize the effects of keystroke errors, thus eliminating a frequent source of student frustration.

WEAKNESSES: Early in the program the student is asked to adjust the pace of the print presentation, however, no change was discernable when the reviewers asked for either increased or decreased speed. The program has only one series of lessons with no branching or randomization to encourage re-use. A single incorrect answer results in the correct answer being presented without prompts or clues. A lack of recordkeeping limits the use of these programs to simple reinforcement drill. The documentation contains only brief, generalized information about the overall program with no suggestions for use or follow-up.

USES: Worksheets and computer lessons can serve to reinforce the teacher's original instruction or as brief refresher lessons.

SENTENCE STRUCTURE. 8 diskettes, guide $320. Borg-Warner, 1983. Grades 4-10

Equipment required: 48K Apple IIe, Apple II Plus, or Apple II with Applesoft, disk drive.

This drill and practice program, with some tutorial capability, thoroughly covers the four sentence types, subjects and predicates, subject/verb agreement, parts of speech, clauses, and punctuation. Each disk will manage the records of up to 120 students, giving the teacher access to an on-screen or printed account of each student's pre- and posttest scores or a summary of his progress on an assignment.

STRENGTHS: Lesson content is written on a fifth grade level making it suitable for use by competent fourth graders as well as high school students in need of specific help. Students receive a reinforcing explanation for their answers and can call for the "help" segment if they are having difficulty.

WEAKNESSES: The print-oriented format is monotonous and there is often so much print on the screen that a poor reader may have problems. Because there is no provision for saving work in progress, a student must begin again at the beginning if he is unable to complete an assignment in one sitting. Lessons are not randomized so students will find themselves repeating the same work if they should have to review a lesson. A student moves on to the next lesson regardless of how well or how poorly he does; it is up to the teacher to make

SENTENCE STRUCTURE. (Cont'd.)

additional assignments based on the student's actual performance.

USES: This kind of isolated drill should be used only in conjunction with actual writing experiences designed to provide opportunities to apply the skills being reviewed. This managed practice frees the teacher to individualize drill and concentrate on composition.

The first four disks (A-D) of *Sentence Structure* and the first four disks (A-D) of *Word Structure*--described on the Advisory List of Computer Courseware, 1981-1982 List 2--can be ordered from the publisher for $320 as a single package entitled *Elementary Language Arts*. Disks E-H of both programs can likewise be ordered as *Junior High Language Arts*.

MATHEMATICS

CLOCK. 1 diskette, guide $39.95. Hartley Cware, 1981. (Available from Hart.) Grades K-3

Equipment required: 48K Apple IIe, Apple II Plus, or Apple II with Applesoft, disk drive.

This program is intended to reinforce the student's time-telling skills, but not to provide initial instruction. The first three modes ask the student to move clock hands to the time shown on the digital display, to type in the time shown on a clock face, or to set the hands of the clock face according to the time given in words on the screen. The fourth mode is a review which lets the student see the time simultaneously both on the clock face and digitally. Each of the four modes allows the student to choose time intervals of one hour, a half hour, fifteen minutes, five minutes, or one minute. A brief user's manual shows how to operate the program, states the operational objectives, and explains the four operational modes.

STRENGTHS: Students can practice at their own speed and level for as long as necessary. They will also learn to relate the time shown digitally to the positions of hands on a clock face. The teacher can make specific assignments based on the individual's particular weakness. A management component shows students their scores on completion of the lesson and the teacher may retrieve these scores at any time using the recall function.

WEAKNESSES: The program cannot be used with children who do not already have some understanding of how to tell time.

USES: Program is an effective tool for review and practice of time telling for students having difficulty with the concept and needing immediate feedback on drill responses. It may be especially useful for EMR students.

INTEGERS/EQUATIONS. 1 diskette, guide $35.95. Hartley Cware, 1981. (Available from Hart.) Grades 6-8

Equipment required: 48K Apple IIe, Apple II Plus, or Apple II with Applesoft, disk drive.

Twenty-three drill-and-practice lessons help pre-algebra and beginning algebra students review positive and negative variables, integers, and equations as well as their associative, commutative, and distributive properties.

STRENGTHS: Large print and clear, well-balanced displays characterize Hartley Courseware drill-and-practice programs. The format is easy for students to follow and there are review tests which check comprehension of every five lessons.

INTEGERS/EQUATIONS. (Cont'd.)

By responding "menu" to the program's request for the user's name, the teacher can modify lessons or create her own. A management segment lets the teacher see the test scores, the items missed, the incorrect answers given by the student and the correct answers. The teacher can create her own set of drill lessons using the existing program format as a shell.

WEAKNESSES: The directions in the guide for using the management component are so confusing and difficult that the novice or inexperienced teacher might give up before mastering it. Once the teacher has persevered, though, the program is convenient to use and should be a very popular tool. (Note: to understand how to modify or create a program, the teacher should run a lesson then run the modification option in order to actually see and understand the lesson structure. This modification option makes it possible to adapt a question to match what has been covered in the classroom.)

USES: Suitable for review and drill of mathematical operations and their properties particularly for those students just beginning to study algebra. The program is especially useful for developing support for a specific lesson.

NUMBER MAGIC. 1 module, guide $19.95. TI, 1979. (Available from Stone's.) Grades 2-5

Equipment required: TI 99/4A.

Colorful, animated drill-and-practice lessons designed to help students increase their proficiency in addition, subtraction, multiplication, and division. Most options deal with single digits, but the more advanced option does include two-digit numbers, and the "memory bank" feature lets the student or teacher input numbers up to three digits. The bunny rabbit, top hat, and other bright reinforcements will appeal to younger children but are not particularly appropriate for older children.

STRENGTHS: This attractive program uses ten problems in every segment, keeping track of the students' scores as they progress. If they are not satisfied with their performance, they can choose to repeat the same lesson, otherwise the material varies with each use.

WEAKNESSES: The practical drill is limited to younger users because of the juvenile nature of the graphics. These children may be confused when working with two- or three-digit numbers and being called on to record the answer left to right. Other than the current running score, there is no record of a student's performance for future reference by the teacher.

USES: Suitable for use with individuals or with small groups of children working together or competing with each other on the same lesson.

SCIENCE

PARTS OF THE MICROSCOPE. 1 diskette, guide $19.95. Ed. Activities, 1982. Grades 8-10

Equipment required: 48K Apple IIe, Apple II Plus, or Apple II with Applesoft, disk drive, color monitor (optional).

This brief program, designed to help students identify the fifteen parts of the microscope, displays a high resolution color picture of a microscope with each part numbered. When the student selects a number corresponding to a part, the name and a short explanation of its function are given. Final tests check the student's ability to recall the names and explanations; however, no scores are

PARTS OF THE MICROSCOPE. (Cont'd.)

recorded for the student's or teacher's records. The very brief guide and the promotional literature both claim branching, graphic reinforcement of correct responses, and animation; however, none of these promises if fulfilled.

STRENGTHS: The program's clear graphics and easily read labels make this a satisfactory lesson for independent review.

WEAKNESSES: Because explanations are restricted to approximately eight words, some of them may be inadequate for the student who is not very familiar with a microscope. The lack of any kind of reinforcement results in a very dull and unimaginative lesson for a computer program.

USES: The program is useful as a review whenever the teacher feels that a microcomputer may provide a student with some needed motivation.

VOLCANOES. 2 diskettes, 2 Blue Books, 2 sets of 5 reproducible maps, instructor's manual $49.50. Earthware, 1981. Grades 9-12

Equipment required: 48K Apple IIe, Apple II Plus, or Apple II with Applesoft, disk drive.

Teams of conscientious, serious, and patient players cooperate to analyze volcanic activity in an effort to minimize death and destruction when an eruption does occur. Players are responsible for specific areas but share the results of their scientifically valid investigations. Infrared scans, seismic surveys, detection of electrical conductivity, tiltmeter surveys, determination of rock ages are performed by the computer and charged to the teams' accounts. Though individual teams bear the cost and analysis responsibility for specific geographical areas of "Wrangelia," a country teaming with long dormant and recently active volcanoes, all teams share in the observations and base their predictions on the cumulative evidence. Diligent players will learn about volcanoes while glimpsing the challenges involved in scientific data gathering and analysis.

Game package contains program disks (one is a backup disk), player's manuals (the Blue Books), reproducible area maps, and an instructor's manual. The fourteen-page player's manual explains the purpose and process of each kind of investigation, describes the history of each volcano, and explains the differences between andesitic composite, basaltic shield, and composite cone volcanoes. A short glossary defines most unfamiliar terms. The instructor's manual suggests an instructional pattern, includes pre- and posttests, and suggests several additional readings in books, pamphlets, and journals. In order to assure the students' increased knowledge and their appreciation of the skills they can learn, the teacher must thoroughly prepare the class and offer reinforcing lessons throughout the activity.

STRENGTHS: This program provides an extraordinary amount of information with an opportunity for immediate use of what is being learned. Students compete in finding essential information while at the same time cooperating to reach a desired goal. Seldom do students have the opportunity to encounter such a realistic and practical simulation.

WEAKNESSES: The program moves extremely slowly requiring a great deal of reading (from the screen and from the Blue Book), note taking, analysis, and waiting for reports. The few graphic displays are dull and unimaginative compared to what is now available in instructional materials. The black-and-white maps intended for player recordkeeping contain too little information: scattered hatch marks are not identified, there are no co-ordinates on the map though they are referred to in the computer analyses, large geographic areas are labeled with the same letters

VOLCANOES. (Cont'd.)

used to identify specific volcanoes. (A legend would have easily resolved some of these problems.) The teacher's manual consists of several unnumbered pages held together with a single staple. These pages are reproductions of a dot matrix computer print-out. In an apparent attempt at humor, the author violates his own serious intentions--when the players run out of money, they are sent to the Crystal Palace Casino to gamble. This is not likely to teach students responsible budgeting--a stated objective of the program. Another difficulty in maintaining a financial accounting is the awkwardness of recording expenditures and occasional program errors, e.g., $156,000 -$20,000 = $135,000.

USES: This simulation is an excellent activity for a group of students (2 to 12) who are especially interested in volcanoes or attracted to scientific exploration.

This program is no longer available for preview in the Media Evaluation Center.

UTILITY

STUDY QUIZ FILES. 1 diskette, guide $24.95. COMPU TATIONS, 1981. Grades K-12

Equipment required: 48K Apple IIe, Apple II Plus, or Apple II with Applesoft, disk drive. Publisher states that program is also available for the 48K Atari.

This quiz generator or shell program allows teachers to create their own quizzes. After the teacher has entered the questions and answers, the program displays them in a multiple choice format. Correct responses are rewarded with a "good work" message, incorrect responses result in a "no" and the correct answer; there is no second chance for incorrect responses.

STRENGTHS: Users enter quiz questions designed to suit the characteristics of specific students. A brief booklet clearly describes the operation of the program, and screen instructions assist the user in running, writing, saving, and deleting quizzes. The simplicity of the program will encourage teachers and students to use it frequently.

WEAKNESSES: The questions are limited to a total of thirty characters and answers are limited to twelve characters each, a restriction which seriously limits the scope of the questions and responses. The absence of recordkeeping and graphics are further limitations to this program.

USES: The program could be used to drill factual concepts and provide immediate feedback in any subject area.

WORD PROCESSING

BANK STREET WRITER. 2 diskettes (1 is backup), guide $69.95. Broderbund, 1982. (Available from Hart.) Grades 3-12

Equipment required: 48K Apple IIe, Apple II Plus, or Apple II with Applesoft, disk drive, blank diskette.

This easy to use word processing program is intended for use by any student required to produce written material. The program is divided into three separate modes: the "enter text" mode which allows the user to enter text directly through the keyboard, the "edit text" mode which allows the user to manipulate previously entered text, and the "transfer mode" which allows the user to move the text from the computer's short term memory to diskette storage or to paper. A fifteen-minute tutorial on the reverse side of the program diskette provides step-by-step instruction for the independent user. Broderbund includes an

BANK STREET WRITER. (Cont'd.)

instruction booklet which has in print format full instructions for using all of the functions of the utility, writing, editing, saving, and printing options.

STRENGTHS: One of the strongest aspects of the program is its ease of use; this simplicity is due to the clear instructions which appear on the screen whenever the user selects one of the options or functions. Three of these functions are *erase* which lets the user erase a letter, a space, or up to fourteen lines of text; *replace* which lets one make substitutions either a single time or whenever the targeted words appear (great for correcting consistent spelling errors); and *move* which permits the writer to rearrange words or blocks of print.

WEAKNESSES: Because the screen is partially used for directions, only eighteen lines of print appear on the screen at a time. If a student does not have good recall of his work, he will have to spend a fair amount of time scrolling his text in order to reread it. The user wanting to create a very long document will probably have the text on more than one diskette. There is no provision for italics, print size changes, sub- or superscript for footnoting or underlining, or other special commands. Compared to more sophisticated word processing programs, this has relatively slow response times.

USES: This program is an excellent tool for word processing. It is useful as an aid for teachers or students because it simplifies and eases the tedious tasks of insertion and deletion, correcting errors, and revision. The program is an outstanding example of a simple-to-use word processor appropriate for use by anyone with access to an Apple computer.

Bank Street Writer is also available in the Scholastic version which is accompanied by a teacher's handbook and is described on page two of this advisory list.

MANAGEMENT-MEDIA

BOOK TRAK. 12 diskettes, manual $1125. Individual modules available: ORDERING $156. CATALOGING $156. CARD AND LABEL PRINTING $125. CIRCULATION $625. MAGAZINE CONTROL $156. Richmond Sware, 1982. (Available ONLY from Follett Lib. Bk.)

Equipment required: 48K Apple IIe, Apple II Plus, or Apple II with Applesoft, 2 disk drives, printer (Follett suggests the Epson MX-80, MX-100, FX-80, or the Apple Dot Matrix), 5 blank diskettes (minimum), BarWand with interface card available from Follett for $330 is recommended for expediting CIRCULATION.

This library management program is intended to automate routine operations, from the ordering process to taking inventory, by permitting the librarian to key in bibliographic information one time and to recall it whenever necessary. Information entered for ordering may be used as a basis for cataloging and for printing cards and labels. Designed by Bob Stevens, a Canadian librarian, the program is carefully planned and clearly explained in a sequentially organized user's manual. The user may call the toll-free number for service and additional support.

Modules can be purchased separately, but they are not totally independent of each other. *Magazine Control* can be used independently and need not directly involve patrons at the outset. Information already stored in *Ordering* can be transferred to *Cataloging, Card and Label Printing* must use information stored in *Cataloging*, and *Circulation* is greatly simplified if the information already exists in *Cataloging*. A recommended sequence for using the modules effectively is *Ordering* (which will record bibliographic data available for all future references to the item), *Cataloging*, then *Card and Label Printing*. *Circulation* is an expensive and

BOOK TRAK. (Cont'd.)

complex final choice; it also contains the inventory component.

Ordering lets the librarian establish budget categories, store item titles for future ordering, and maintain budget records. These records can be retrieved by author, title, supplier, and ISBN or LC number. The ordering information can be transferred electronically to the cataloging diskette as new items arrive. This segment contains an accounts file diskette, a consideration file diskette, order and on-order diskettes, and a master program diskette. Up to 512 items can be stored per diskette.

Cataloging lets the librarian store cataloging data for about 200 titles per diskette. The menu options include adding, deleting, and updating titles; inspecting records; listing titles in record number order; sorting and listing titles; and, with prior planning, printing shelf lists. Data, once entered, can be used to print up to five different cards. If schools need more than those five cards per item, then creating "Card 2" will make it possible to generate additional entry cards. Tracings are listed vertically, not horizontally on the cards. The cataloging data can be electronically transferred from this program to the *Card and Label Printing* program.

Card and Label Printing lets the media specialist review previously entered data before printing catalog cards and labels for the book spine, pocket, and circulation card. There are provisions for defining unique spacing and format requirements.

Circulation is the most detailed and complex of the programs and requires the most preplanning. The items which should be determined in advance are the length of loan periods, identification numbers for patrons and staff, the appropriate schedule for updating data, production of bar-code labels, and item identification numbers to simplify the gathering of statistics. The manual gives detailed explanations for utilizing menu selections, creating the necessary number of diskettes, and for implementing the system. The overdue function can generate a list of all overdues and can also print the overdue notices to patrons. At the circulation desk, the staff can maintain an up-to-the-minute report of the collection and have an exact account of each patron's status. A major bonus of this component is that the user can take inventory simply by passing the BarWand across the labels of the items on the shelves. If the collection must withstand heavy wear, Follett suggests covering labels with plastic or affixing them to the inside of the books.

Magazine Control stores subscription information for 300 titles per diskette. Menu options permit adding, deleting, and updating titles. With this data one can sort and list titles, print lists of holdings, and generate letters to suppliers about missing issues.

STRENGTHS: The sound conceptual design of this extensive program is in large part due to the fact that the author is a professional librarian with computer experience. The documentation is arranged for convenient use and easy reference. One of the most significant assets is the convenience of using the same data in several different operations.

WEAKNESSES: The major drawback to purchasing this program is the company's refusal to permit a review period. The backup procedure states that a single copy of the system master is available with purchase and that a replacement of the master is possible only during the 90-day warranty period. There is a charge for additional replacements. Buyers should read carefully the documentation about backups, replacements, data diskette creation, and publisher's updates because warranty forms must be returned promptly to insure registration. The vendor is straightforward about the operation of the system, the volume of data which can be handled, and the transactions possible. However, the user may still

BOOK TRAK. (Cont'd.)

be overwhelmed by the number of diskettes to be handled and the amount of disk-shuffling required. Effective use of the system will require time and patience to develop the expertise necessary to manipulate data and retrieve the desired information.

USES: BOOK TRAK permits efficient management of many of the time-consuming routines essential to the operation of a large media collection. To reduce the chances of errors, the following steps are recommended: 1) use the printed list generated by the machine to aid in checking such items as students' names and borrowers' numbers; 2) use the data entry forms provided with the program for data entry, then the information is in the best format for entry and can be easily proofread; 3) when using the BarWand move it rapidly and lightly over the labels; 4) enter a limited amount of data to check the system before trying to store all of the desired information; 5) study carefully the information in the manual on how to create data diskettes in order to insure that diskettes are properly initialized to accept data; 6) keep backups of the data diskettes and update regularly.

The company projects that a hard disk version will be available and that users will be able to transfer data from their floppy diskettes to a hard disk.

DIRECTORY OF PRODUCERS

Borg-Warner - Borg-Warner Educational Systems, 600 West University Drive, Arlington Heights, Illinois 60004

Broderbund - Broderbund Software, 1938 Fourth Street, San Rafael, California 94901

COMPU TATIONS - COMPU-TATIONS, Inc., P.O. Box 502, Troy, Michigan 48099

DLM - Developmental Learning Materials, One DLM Park, Allen, Texas 75002

Earthware - Earthware Computer Services, P.O. Box 30039, Eugene, Oregon 97403

Ed. Activities - Educational Activities, Inc., P.O. Box 392, Freeport, New York 11520

Follett Lib. Bk. - Follett Library Book Company, 4506 Northwest Highway, Route 14 & 31, Crystal Lake, Illinois 60014

Hart - Hart, Inc., 8 Baird Mountain Road, Asheville, North Carolina 28804

Hartley Cware - Hartley Courseware, Inc., P.O. Box 431, Dimondale, Michigan 48821

Hartman - Jack L. Hartman and Company, Inc., 2840 Peters Creek Road, Roanoke, Virginia 24019

L & S Computerware - L & S Computerware, 1589 Fraser Drive, Sunnyvale, California 94087

Richmond Sware - Richmond Software Corp., Box 5587, San Mateo, California 94402

Scholastic - Scholastic, Inc., 904 Sylvan Avenue, Englewood Cliffs, New Jersey 07632

Stone's - Stone's Southern School Supply Company, 3800 Holly Springs Road, Raleigh, North Carolina 27606

TI - Texas Instruments, Inc., P.O. Box 53, Lubbock, Texas 79408

TSC/Houghton - TSC/Houghton Mifflin, 7055 Amwiler Industrial Drive, Atlanta, Georgia 30360

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